Operation Guide

MW100
Data Acquisition Unit

YOKOGAWA
Yokogawa Electric Corporation

IM MW100-02E
3rd Edition

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User Registration

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PRS 105-02E

Foreword

Thank you for purchasing the MW100 Data Acquisition Unit.
This manual provides an overview of the operating procedures of the MW100 Data Acquisition Unit, and the basic operating procedures of the Viewer software. To ensure correct use, please read this manual thoroughly before beginning operation.
The following six manuals relating to the MW100 Data Acquisition Unit are provided in addition to this one. Read them along with this manual. The MW100 User's Manual (IM MW100-01E), MW100 Viewer Software User's Manual (IM MW180-01E), MW100 Communication Command Manual (IM MW100-17E), and this manual (IM MW100-02E) are all available on the MW100 Manual CD-ROM.

Manual Title	Manual No.	Description
MW100 Data Acquisition Unit User's Manual	IM MW100-01E	Explains the MW100 Data Acquisition Unit functions, installation and wiring procedures, precautions, and browser operations.
MW100 Communication Command Manual	IM MW100-17E	Lists and explains usage of the commands that can be used with the MW100 Main Module.
Precautions on the Use of the MX100/MW100	IM MX100-71E	Explains precautions during use of the MX100/ MW100 Data Acquisition Unit
MX100 Data Acquisition Unit Installation and Connection Guide	IM MX100-72E	Gives an overview of installation and wiring procedures for the MW100 Data Acquisition Unit
Control of pollution caused by MX100/MW100 products	IM MX100-91C	Describes control of pollution caused by the product.
MW100 Viewer Software User's Manual	IM MW180-01E	Explains the functions and operations of the Viewer software that comes standard with the MW100 Main Module.

Notes

- This manual describes style number S3 of the MW100 Data Acquisition Unit. It also describes release number R3.01 of the MW100 Viewer Software.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA representative, dealer, or sales office.
- This user's manual does not cover the handling and operating procedures of Windows.
- Copying or reproducing all or any part of the contents of this manual without YOKOGAWA's permission is strictly prohibited.
- The TCP/IP software and related documentation for this product was developed and created by Yokogawa based on BSD Networking Software Release 1, licensed from the University of California.

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Revisions

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2nd Edition: October, 2006
3rd Edition: October, 2007

3rd Edition: October 2007 (YK)
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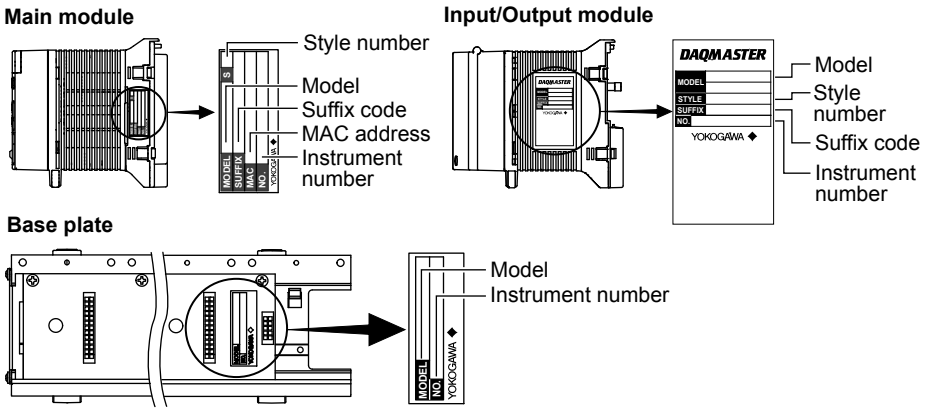
Checking the Contents of the Package

Unpack the box and check the contents before operating the instrument. If some of the contents are not correct, or if any items are missing or damaged, contact the dealer from whom you purchased them.

Checking the Model and Suffix Code

Check the model and suffix code on the name plate indicated in the figure below.



Note

When contacting the dealer from which you purchased the instrument, please give them the NO. (instrument number) on the name plate.

Main Module

Model	Suffix Code		Description
MW100			Main module
Language	-E		English (comes with an English manual)*1
Supply voltage	-1		100 VAC-240 VAC
	-2		12 VDC-28VDC, with AC adapter*2
	-3		12 VDC-28VDC, without AC adapter*3
Power supply and power cord	-D		AC power: 3-pin inlet, UL/CSA Standard power cord DC power: Screw terminal, UL/CSA cable for AC adapter
	-F		AC power: 3-pin inlet, VDE Standard power cord DC power: Screw terminal, VDE cable for AC adapter
	-R		AC power: 3-pin inlet, AS Standard power cord DC power: Screw terminal, AS cable for AC adapter
	-Q		AC power: 3-pin inlet, BS Standard power cord DC power: Screw terminal, BS cable for AC adapter
	-H		AC power: 3-pin inlet, GB (CCC) Standard power cord DC power: Screw terminal, GB (CCC) cable for AC adapter
	-W		Screw terminal, power supply cord not included*2, *3
Options		/C2	RS-232 communications interface*4, *5
		/C3	RS-422A/485 communications interface*4, *5
		/M1	Mathematical function*5, *6
		/M3	Report function
		/SL1	10ch Quick Start Package*7
		/SL2	20ch Quick Start Package*7
		/SL3	30ch Quick Start Package*7

*1 Displays Celsius or Fahrenheit, Daylight savig time can be set.
*2 “W” cannot be selected with “-2.”
*3 “-3” can only be selected with “W”
*4 “/C2” and “/C3” may not be selected together.
*5 “/C2” or “/C3” must be selected to use the Modbus/RTU slave function. Also, “/M1” must be selected for use of the Modbus/RTU master function.
*6 “/M1” must be selected to use the Modbus/TCP client function.
*7 “/SL1”, “/SL2”, and “/SL3” may not be selected together.

Universal Input Module, DCV/TC/DI Input Module, and Four-Wire RTD Resistance Input Module

Model	Suffix Code		Description
MX110			
Input type	-UNV		For DCV/TC/DI/3-wire RTD input
	-VTD		For DCV/TC/DI input
	-V4R		For DCV/DI/4-wire RTD/4-wire resistance input
Number of channels and measurement interval	-H04[*1]		4-CH, high-speed measurement (minimum measurement Interval: 10 ms)
	-M06[*1]		6-CH, medium-speed measurement (minimum measurement interval: 100 ms)
	-M10[*1]		10-CH, medium-speed measurement (minimum measurement interval: 100 ms)
	-L30[*1]		30-CH, medium-speed measurement (minimum measurement interval: 500 ms)
Options		/NC[*2]	Without the plate with the clamp terminals
		/H3[*3]	M3 screw terminals

*1 "-H04" or "-M10" must be selected if "-UNV" is selected. "-M06" must be selected if "-V4R" is selected. "-VTD" must be selected if "-L30" is selected.

*2 The "/NC" option can be specified only when "-M10" is specified.

*3 The "/H3" option can be specified only when "-L30" is specified.

Strain Input Module

Model	Suffix Code		Description
MX112			
Input type	-B12		Internal bridge resistance: 120 Ω
	-B35		Internal bridge resistance: 350 Ω
	-NDI		NDIS connector for connections to an external bridge head
Number of channels and measurement interval	-M04		4-CH, medium-speed measurement (minimum measurement and measurement interval: 100 ms)

Pulse Input Module

Model	Suffix Code		Description
MX114			
Input type	-PLS		Non-voltage contact, 5-V logic, open collector input
Number of channels and measurement interval	-M10		10-CH, medium-speed measurement (minimum measurement interval: 100 ms)
Options		/NC	Without the plate with the clamp terminals

Digital Input Module

Model	Suffix Code		Description
MX115			
Input type	-D05		Non-voltage contact, 5-V logic, open collector input
	-D24		24 V logic
Number of channels and measurement interval	-H10		10-CH, high-speed measurement (minimum measurement and measurement interval: 10 ms)
Options		/NC	Without the plate with the clamp terminals

Analog Output Module

Model	Suffix Code		Description
MX120			
Output type	-VAO		Voltage/current output
	-PWM		Pulse width modulation output
Number of channels and output update interval	-M08		8-CH, minimum output update interval: 100 ms

Digital Output Module

Model	Suffix Code		Description
MX125			
Output type	-MKC		A contact output
Number of channels and output update interval	-M10		10-CH, minimum output update interval: 100 ms

Base Plate

Model	Suffix Code	Description
MX150		Includes two brackets for DIN rail mount
Base type	-1 to -6*	The value of the suffix code corresponds to the maximum number of input output modules that can be installed. MX150-6 is for one main module, and six input/output modules.

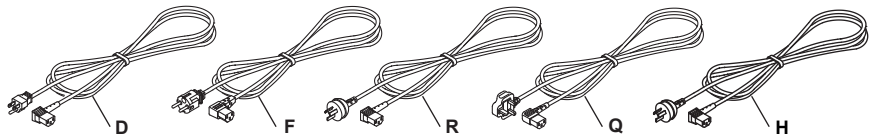
* One unit of the MX110-VTD-L30 requires three slots worth of space when installing.

Standard Accessories

The following standard accessories are supplied with the main module. Check that all contents are present and that they are undamaged.

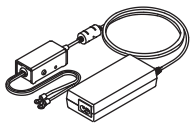
Power Cord (one of the following power cords is supplied according to the instrument's suffix codes)

UL/CSA Standard A1074WD | **VDE Standard A1009WD** | **AS Standard A1024WD** | **BS Standard A1054WD** | **GB Standard (complies with CCC) A1064WD**



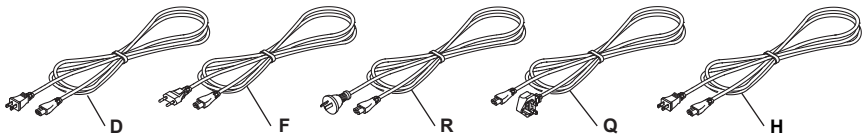
Note: Not included when screw terminals are specified for the power section (Suffix code: W).

AC adapter and Power cord*1
Model: 772075



***1 Power Cord for AC adapter (one of the following power cords is supplied according to the instrument's suffix codes)**

UL/CSA Standard | **VDE Standard** | **AS Standard** | **BS Standard** | **GB Standard (complies with CCC)**



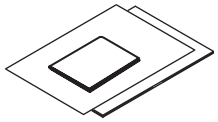
Note: Not included when screw terminals are specified for the power section (Suffix code: W).

MW100 Viewer Software
Model: MW180-1

MW100 Manual CD-ROM*2
Part number: B8724XA

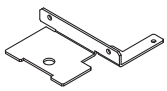
***2 Includes:**
- **MW100 Data Acquisition Unit User's Manual (IM MW100-01E)**
- **This manual (IM MW100-02E)**
- **MW100 Communication Command Manual (IM MW100-17E)**
- **MW100 Viewer Software User's Manual (IM MW180-01E)**

Paper Manuals



- **MW100 Data Acquisition Unit Operation Guide (IM MW100-02E)**
- **Precautions on the Use of the MX100/MW100 Data Acquisition Unit (IM MX100-71E)**
- **MX100/MW100 Data Acquisition Unit Installation and Connection Guide (IM MX100-72E)**
- **Control of pollution caused by MX100/MW100 products (IM MX100-91C)**

Bracket for base plate
Part number: B8724EF



Screw for bracket
Part number: B9988DL

Optional Accessories (Sold Separately)

AC adapter

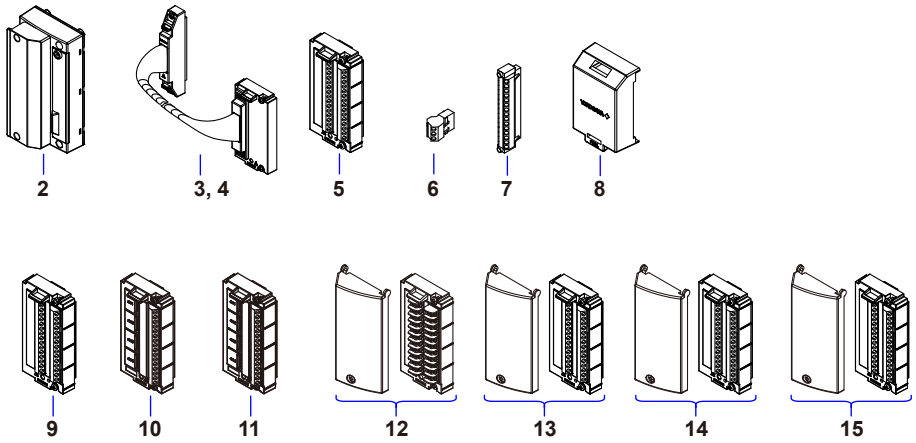
No.	Name	Model	Basic Suffix Code	Min. Q'ty	Note
1	AC adapter	772075			
	Power supply code		-D	1	Cable for UL/CSA
			-F	1	Cable for VDE
			-R	1	Cable for AS
			-Q	1	Cable for BS
			-H	1	Cable for GB (CCC)

Terminals

No.	Name	Model	Min. Q'ty	Note
2	10-CH screw terminal block (with RJC)	772061	1	Dedicated to the MX110-UNV-M10/ MX114-PLS-M10/MX115-D05-H10/ MX115-D24-H10
3	Connection cable between the input module and screw terminal block	772062-050	1	Cable length: 50 cm*1
4	Connection cable between the input module and screw terminal block	772062-100	1	Cable length: 100cm*1
5	Plate with clamp terminals (with RJC)	772063	1	Dedicated to the MX110-UNV-M10/ MX114-PLS-M10/MX115-D05-H10/ MX115-D24-H10
6	Clamp terminal	772064	1	Dedicated to the MX110-UNV-H04
7	Clamp terminal	772065	1	Dedicated to the MX120-VAO-M08/ MX120-PWM-M08/MX125-MKC-M10
8	Connector cover	772066	1	For empty slots with no module installed
9	Plate with clamp terminals	772067	1	Dedicated to the MX110-V4R-M06
10	Plate with clamp terminals (Built in bridge: 120 Ω)	772068	1	Dedicated to the MX112-B12-M04*2
11	Plate with clamp terminals (Built in bridge: 350 Ω)	772069	1	Dedicated to the MX112-B35-M04*2
12	Plate with screw terminal	772080	1	Dedicated to the MX110-UNV-M10/ MX114-PLS-M10/MX115-D05-H10/ MX115-D24-H10
13	Plate with screw terminal for current (Built-in shunt resistor of 10 Ω)	772081	1	Dedicated to the MX110-UNV-M10
14	Plate with screw terminal for current (Built-in shunt resistor of 100 Ω)	772082	1	Dedicated to the MX110-UNV-M10
15	Plate with screw terminal for current (Built-in shunt resistor of 250 Ω)	772083	1	Dedicated to the MX110-UNV-M10

*1 For the 772062, only applies from MX110-UNV-M10 to screw terminal block (772061), MX114-PLS-M10 to screw terminal block (772061), MX115-D05-H10 to screw terminal block (772061), and MX115-D24-H10 to screw terminal block (772061).

*2 772068 is only applicable to MX112-B35-M04. 772069 is only applicable to MX112-B12-M04.



Shunt resistor

No.	Name	Model	Min. Q'ty	Note
16	Shunt resistor (for the clamp terminal)	438920	1	Resistance: 250 Ω±0.1%
17	Shunt resistor (for the clamp terminal)	438921	1	Resistance: 100 Ω±0.1%
18	Shunt resistor	438922	1	Resistance: 10 Ω±0.1%
19	Shunt resistor	415920	1	Resistance: 250 Ω±0.1%
20	Shunt resistor	415921	1	Resistance: 100 Ω±0.1%
21	Shunt resistor	415922	1	Resistance: 10 Ω±0.1%

Memory card

No.	Name	Model	Min. Q'ty	Note
22	Adapter for CompactFlash card	772090	1	
23	CompactFlash card	772091	1	128 MB*
24	CompactFlash card	772092	1	256 MB*
25	CompactFlash card	772093	1	512 MB*
26	CompactFlash card	772094	1	1 GB*

* Operating temperature range: -40 to 85°C

Software Application (Sold Separately)

No.	Name	Model	Note
1	GateMX/MW	WX1	MX100/MW100 Gate software for connecting to DAQLOGGER data acquisition software.

Style Upgrade Kit (Sold Separately)

No.	Name	Model	Note
1	Style upgrade kit for the MW100	772050-02	Upgrades the MW100 from Style 2 to Style 3.

Introduction to Functions

For details on individual functions, see one of the following user's manuals located on the enclosed CD-ROM: MW100 Data Acquisition Unit User's Manual (IM MW100-01E, MW100 Communication Command Manual (IM MW100-17E), or MW100 Viewer Software User's Manual (IM MW180-01E).

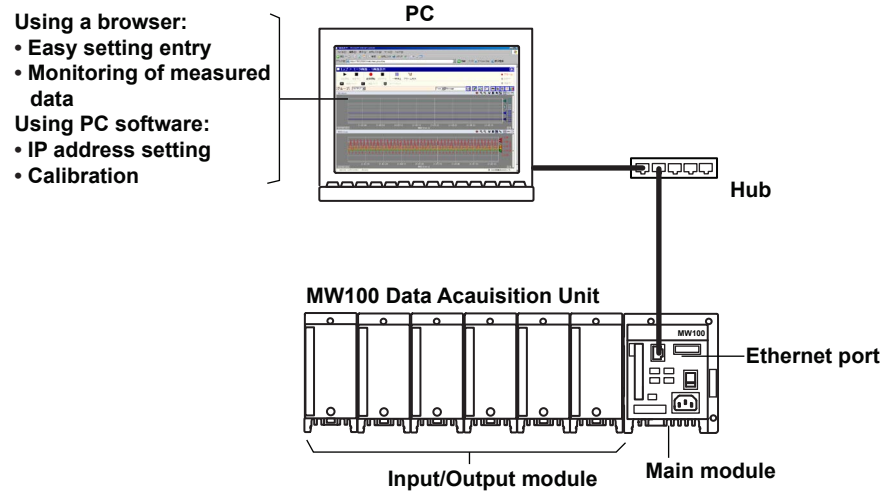
Overview of the MW100 Data Acquisition Unit

The MW100 Data Acquisition Unit consists of a main module equipped with an Ethernet port, I/O modules for input and output of signals (these are the same as those for the MX100 Data Acquisition Unit), and a base plate to which the first two items are mounted. The main module comes with a HTTP server function, allowing users to easily enter settings and monitor measured data from a PC using a browser. The MW100 can be used for data acquisition on site as a standalone, enabling data acquisition on up to 360 channels using the Modbus TCP or RTU function.

The MW100 Data Acquisition Unit can be flexibly configured for a variety of measuring environments.

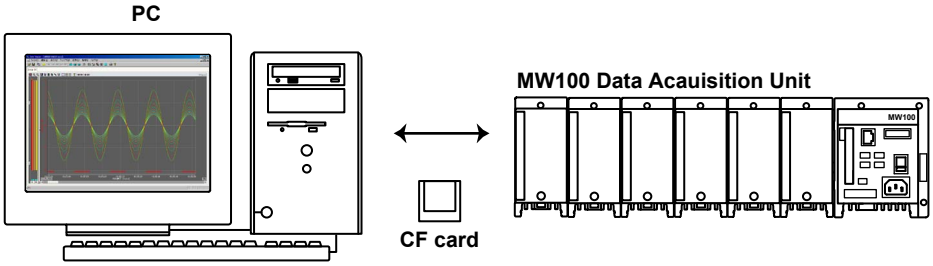
One-to-one Connection with a PC

This is an example of a system for small scale logging, IP address settings, and other capabilities.



Standalone Configuration

This is an example of configuration for an on-site standalone data acquisition system.



One-to-N Connection with a PC

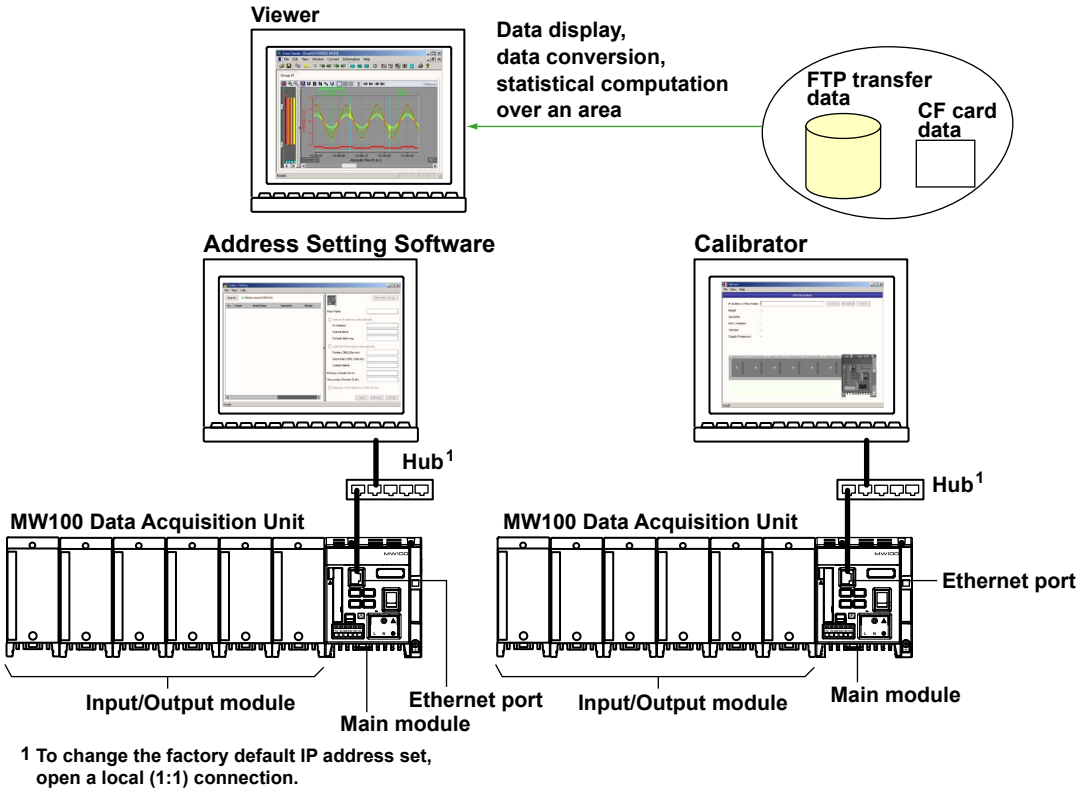
Connections can be made via Ethernet or RS-422A/485. For connection examples, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E).

Connecting to Modbus Devices

You can connect to Modbus devices. For connection examples, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E).

Overview of MW100 Viewer Software

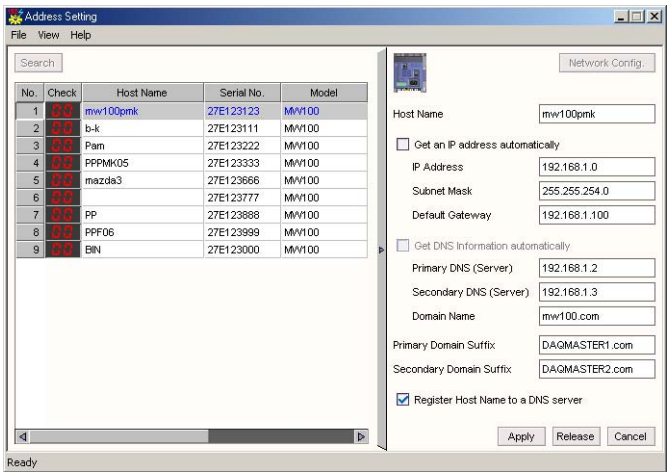
MW100 Viewer Software consists of the three software components described below.



1 To change the factory default IP address set, open a local (1:1) connection.

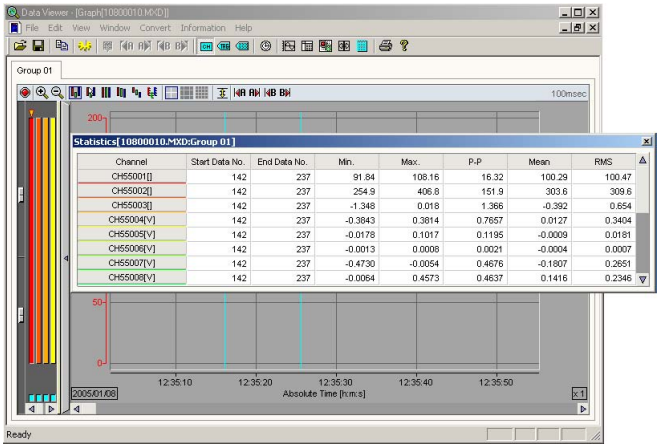
Address Setting Software

The address setting software allows you to enter initial communication settings on the MW100 main unit. The software opens a local (1-to-1) connection with the MW100 main unit, allowing changes to the factory default IP address, and it searches for and displays other MW100s on the same segment. The software allows you to change settings such as the MW100 host name, IP address, DNS server, domain name, and domain suffix, and register a host name on the DNS server.



The Address Setting software can also be run directly from the CD-ROM without being installed on the PC. Click a language selection button in the MW100 Viewer Software CD-ROM address setting startup screen.

Viewer

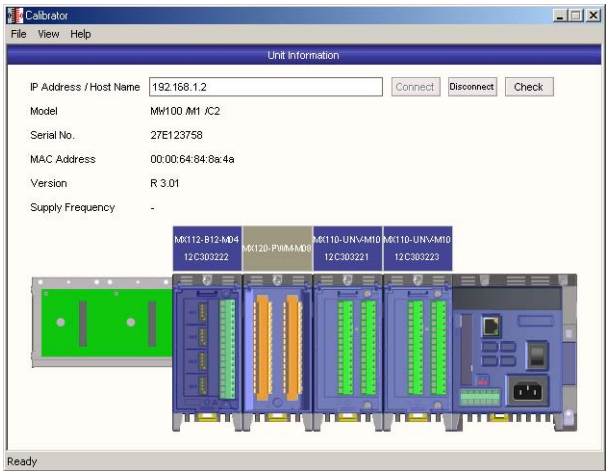


You can load the measured/computed data that was saved in the past and carry out the operations below. You can also display manual sample files and report files.

- Joining
  When opening a divided data file, related files can be joined and displayed.
- Display waveforms and numerical values
- Display the alarm/mark list
- Change the display conditions (group assignments, scale, trip point, display color and other parameters)
- Read data values using the cursor
- Perform statistical computation over an area
- Display and add marks
- Save or load display conditions
- Display the file information
- Convert data formats (ASCII, Excel, and Lotus)
- Print data (waveforms, numeric values, alarm/marker list, cursor values, statistics over an area, and computed values)
- Use and save templates

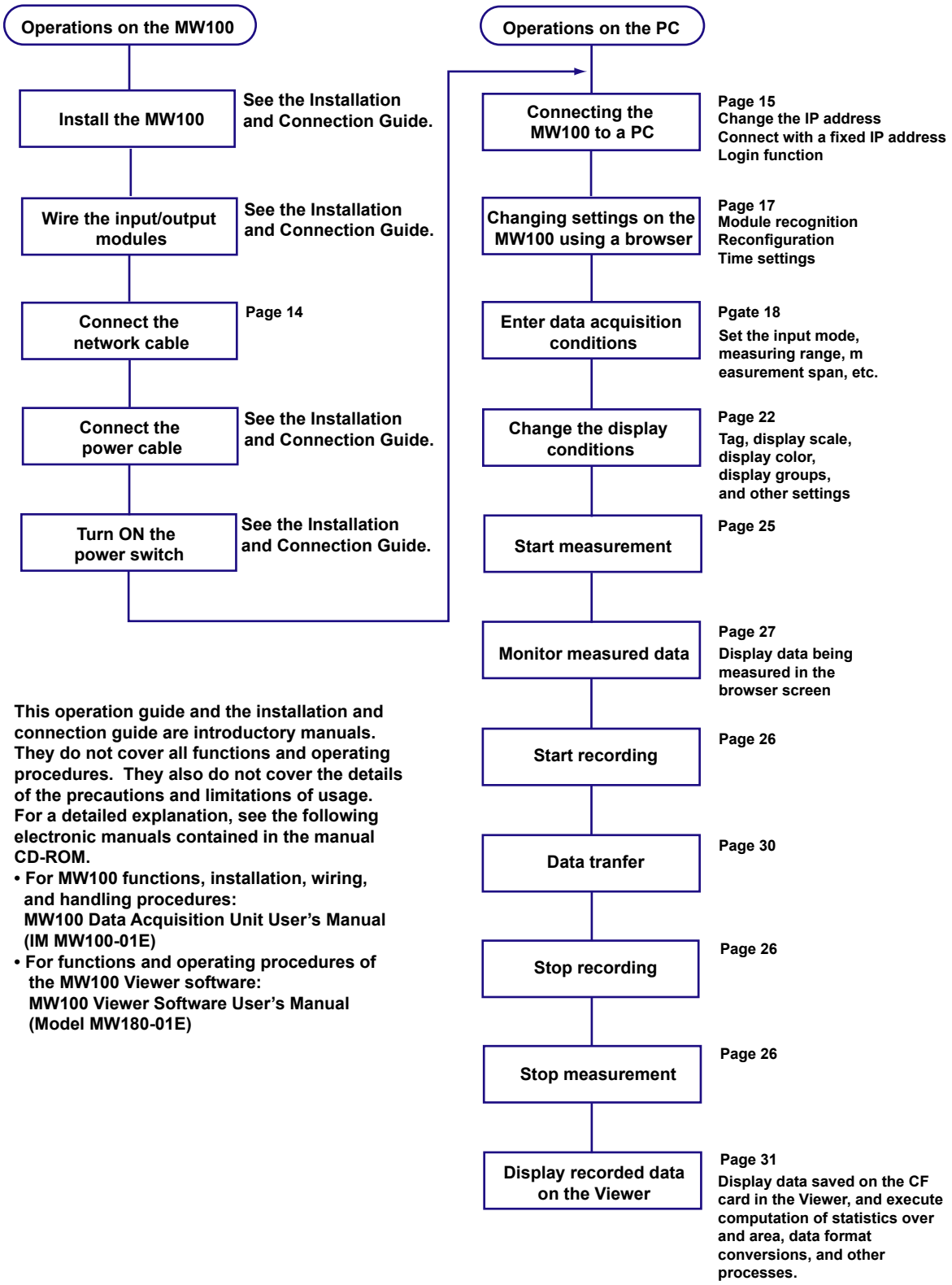
Calibrator

This software is used to calibrate the MW100 input/output modules.
You can connect to the MW100, display the modules that can be calibrated, and carry out calibration at each measurement range and output range.



Flow of Operations during Installation

The figure below shows the general flow of operation when the MX100 is installed initially.


Operations on the MW100
Install the MW100
See the Installation and Connection Guide.
Wire the input/output modules
See the Installation and Connection Guide.
Connect the network cable
Page 14
Connect the power cable
See the Installation and Connection Guide.
Turn ON the power switch
See the Installation and Connection Guide.
Operations on the PC
Connecting the MW100 to a PC
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Change the IP address
Connect with a fixed IP address
Login function
Changing settings on the MW100 using a browser
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Module recognition
Reconfiguration
Time settings
Enter data acquisition conditions
Pgate 18
Set the input mode, measuring range, m easurement span, etc.
Change the display conditions
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Tag, display scale, display color, display groups, and other settings
Start measurement
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Monitor measured data
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Display data being measured in the browser screen
Start recording
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Data tranfer
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Stop recording
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Stop measurement
Page 26
Display recorded data on the Viewer
Page 31
Display data saved on the CF card in the Viewer, and execute computation of statistics over and area, data format conversions, and other processes.

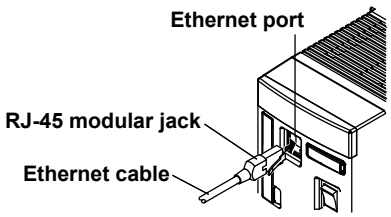
This operation guide and the installation and connection guide are introductory manuals. They do not cover all functions and operating procedures. They also do not cover the details of the precautions and limitations of usage. For a detailed explanation, see the following electronic manuals contained in the manual CD-ROM.

- **For MW100 functions, installation, wiring, and handling procedures: MW100 Data Acquisition Unit User's Manual (IM MW100-01E)**
- **For functions and operating procedures of the MW100 Viewer software: MW100 Viewer Software User's Manual (Model MW180-01E)**

Connecting to a Network

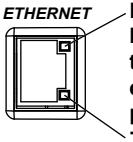
Connecting an Ethernet Cable to the Main Module

Connect the Ethernet cable to the Ethernet port on the main module. Use a UTP (category 5 or higher) or STP Ethernet cable.



Checking the Communication Status

You can check the status on the two LEDs at the upper-right and lower-right of the Ethernet port.

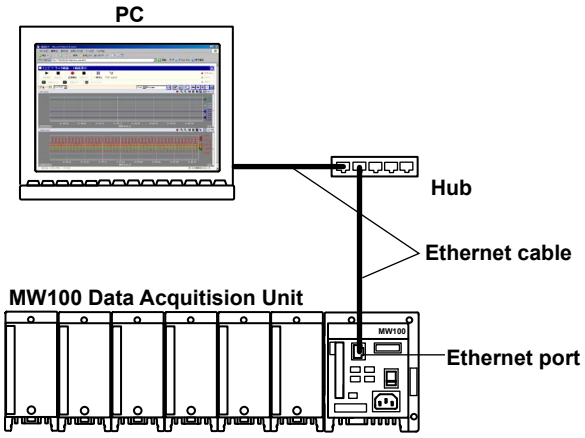


LINK LED
Illuminates in orange when the link between the MW100 and the connected device is established and communication is mutually possible.

TX LED
Blinks in green when packet transmission is being carried out normally.

Connection to the PC

Make the connection via a hub. For a one-to-one connection with a PC, make the connection as shown in the figure below. In the same manner, you can connect multiple MW100 Data Acquisition Units to a single PC.



Connecting the Main Module to a PC

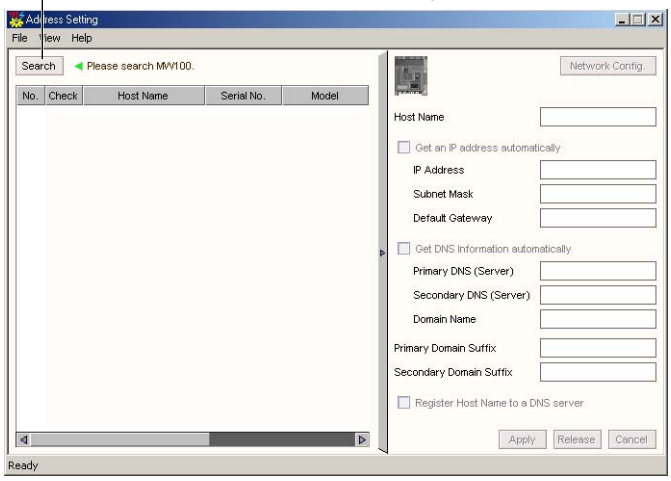
Ethernet Connection

Setting the IP Address

Because the IP address is not set by factory default, set the IP address first.

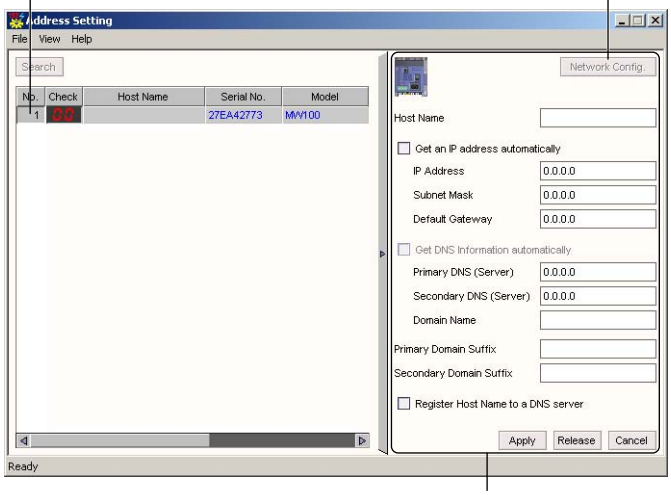
1. After opening an Ethernet connection between the MW100 and PC, run the MW100 Viewer Software CD-ROM or the IP address setting software installed on the PC.

2. Click here.
   The MW100 information is displayed.



3. Click here.
   Information appears in the address setting screen.

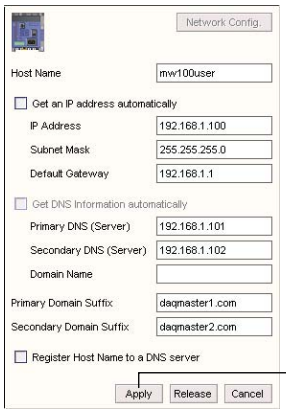
4. Click here.
   Setting changes are enabled.



Address Setting Screen

5. Make entries in the address setting screen.
The following is an example of editing such entries.

- Host name: mw100user
- Specify IP address: 192.168.1.100
- Subnet mask: 255.255.255.0
- Default gateway: 192.168.1.1
- Specify a DNS server
  - Primary DNS server: 192.168.1.101
  - Secondary DNS server: 192.168.1.102
- Specify a domain suffix
  - Primary domain suffix: daqmaster1.com
  - Secondary domain suffix: daqmaster2.com



6. Click here.
The edited items are applied to the MW100.

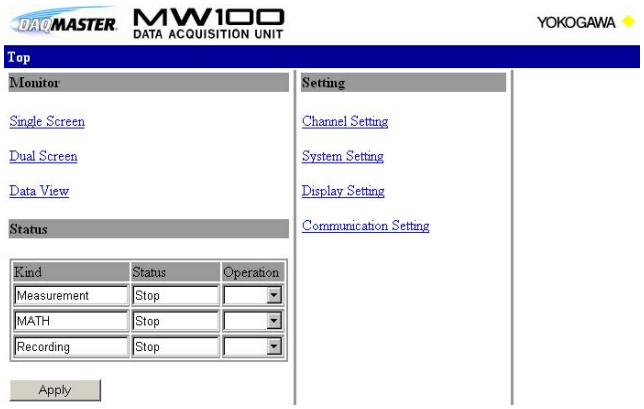
Connecting with a Browser

7. Connect an Ethernet cable between the MW100 and PC, then start the browser.

8. Enter the IP address of the MW100 in the browser's URL/Address box.

Ex. Specifying the IP address using the browser

The MW100 top screen appears. From the browser, you can change MW100 settings, or acquire/record data.

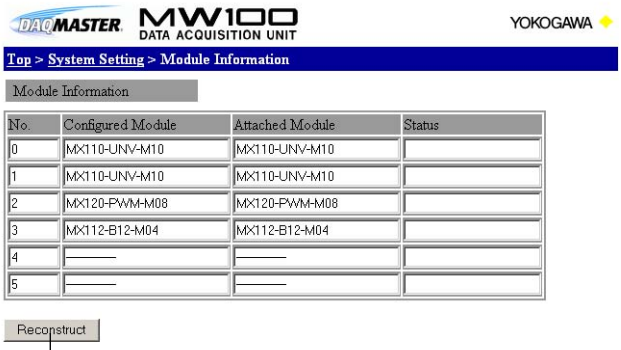


Entering Settings on the MW100 Using a Browser

MW100 System Settings

Display of Module Information and Reconfiguration

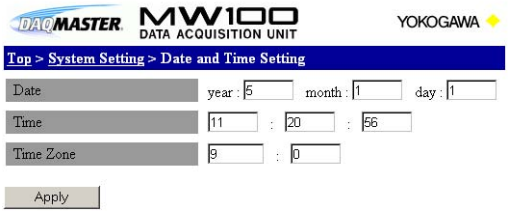
1. From the browser top screen, click System Setting > Module Information.
   The module information screen is displayed.



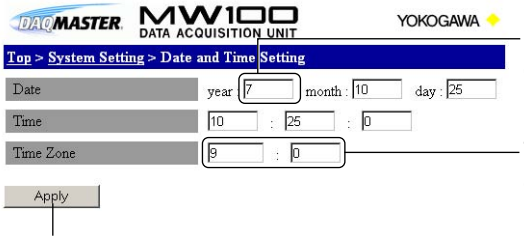
2. If the Configured Module and Attached Module displays are different, click here.
   System reconfiguration is executed.
   The Configured Module and Attached Module displays become the same.
   If the attached module does not appear, turn OFF the power and check that the module is attached correctly.

Setting the Date and Time

3. After choosing System Setting in step 2, click Date and Time Setting.
   The date/time setting screen appears.



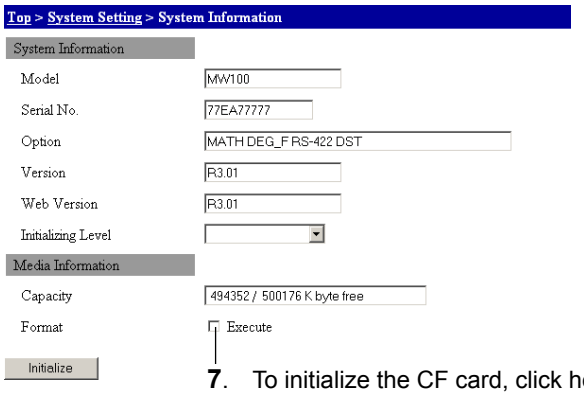
4. Change the date and time setting.
   The following is an example.
   Date: October 25, 2007
   Time: 10:25:00
   Time zone: 9:00.



5. Click here.
   The date and time settings are changed.

Checking Free Space on the CF Card and Initializing

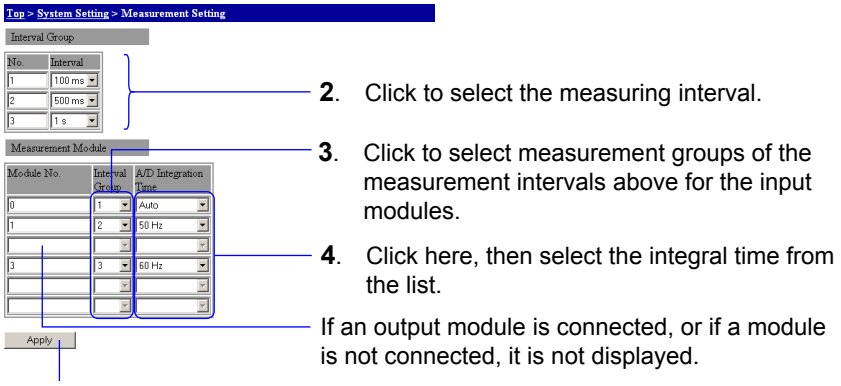
6. After choosing System Setting in step 5, click System Information.
The amount of free space on the CF card is shown under Media Information.



7. To initialize the CF card, click here, then click the Initialize button.

Measurement Groups and Measurement Module Settings

1. From the browser top screen, click System Setting > Measurement Setting.
The measurement operation setting screen in displayed.



2. Click to select the measuring interval.

3. Click to select measurement groups of the measurement intervals above for the input modules.

4. Click here, then select the integral time from the list.

If an output module is connected, or if a module is not connected, it is not displayed.

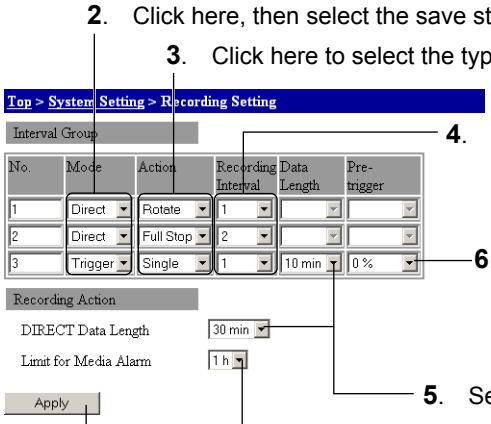
5. Click here.
The settings are changed.

Note

- The Interval Group that is assigned to the measurement group number is set as:
  (interval is short) Interval group1 ≤ Interval group2 ≤ Interval group 3 (interval is long)
- The equivalent of three modules worth of settings are entered for the 30-CH Medium Speed DCV/TC/DI Input Module.
  - Select the same measurement group for the three measurement groups.
  - Select the same integral time for the three A/D integral times.

Settings for Recording to CF Card

1. From the browser top screen, click System Setting > Recording Setting.
The recording operation setting screen in displayed.



2. Click here, then select the save start operation.

3. Click here to select the type of recording.

4. Click to select the recording interval. Set an integer multiple of the measurement interval.

5. Select the data length.

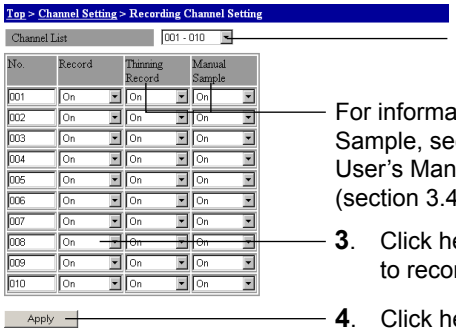
6. Select a trigger length if data is to be saved upon activation of the trigger. Specify a pretrigger length as a percentage of the data length.

7. Click to select the time remaining for activating the media alarm.

8. Click here.
The settings are changed.

Recording Channel Settings

1. From the browser top screen, click Channel Setting > Recording Channel Setting.
The recording channel setup screen appears.



2. Click here to select the recording channel range.

For information on thinning recording and Manual Sample, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E). Thinning recording (section 3.4), Manual Sample (section 1.3)

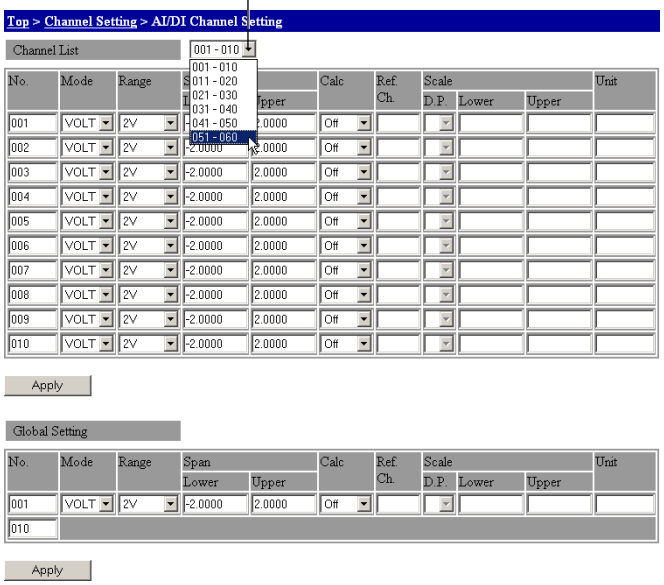
3. Click here to select to record (On) or not to record (Off).

4. Click here.
The settings are changed.

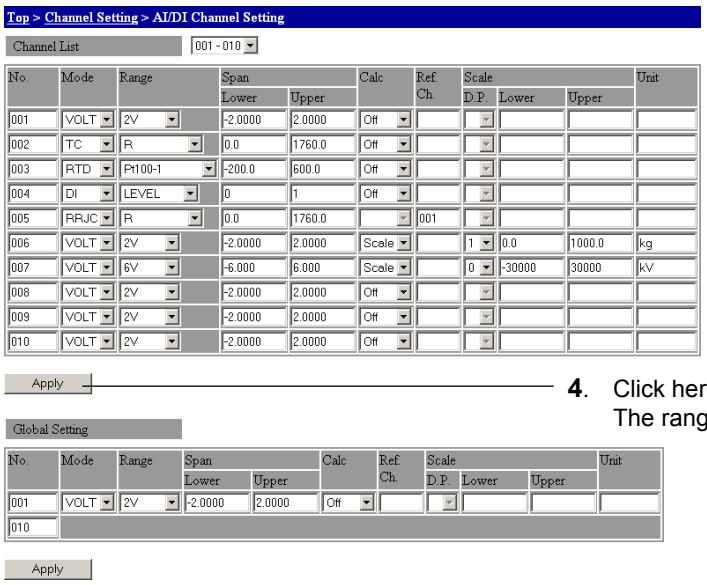
Measuring Interval and Range Settings (for the Universal Input Module)

1. From the browser top screen, click Channel Setting > AI/DI Channel Setting.
The input range setting screen appears.

2. Click the list, then select the channel range you wish to set.



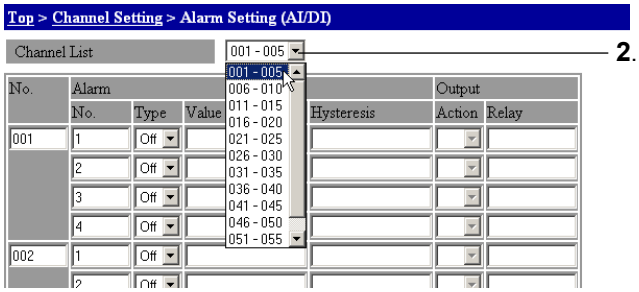
3. Set the input type, measuring range, measurement span, scale, and other items.
The following is an example. For procedures for setting up an input module other than the universal input module, see the MW100 Data Acquisition Unit's user's manual (IM MW100-01E), chapter 3.



4. Click here.
The range is changed.

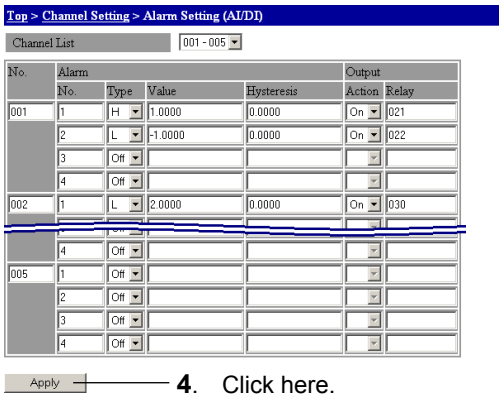
Alarm and Relay Settings

1. From the browser top screen, click Channel Setting > Alarm Setting (AI/DI).
The alarm setting screen in displayed.



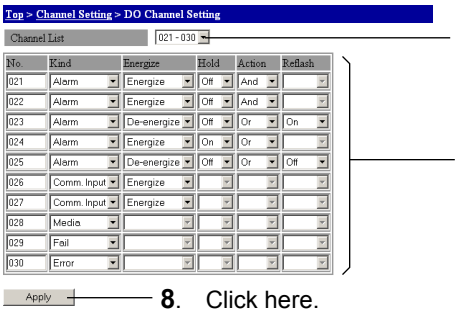
2. Select the channel range you wish to set in the list.

3. Select the alarm type, then enter the alarm value and hysteresis.
For details on alarm setting items, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E), section 1.3.



4. Click here.
The alarm settings are changed.

5. After choosing Channel Setting in step 4, click DO Channel Setting.
The relay setting screen in displayed. For details, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E), sections 3.7 and 3.8.



6. Click the channel range for which you wish to set relays.

7. Enter or select each item.
For details on relays, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E), section 1.12.

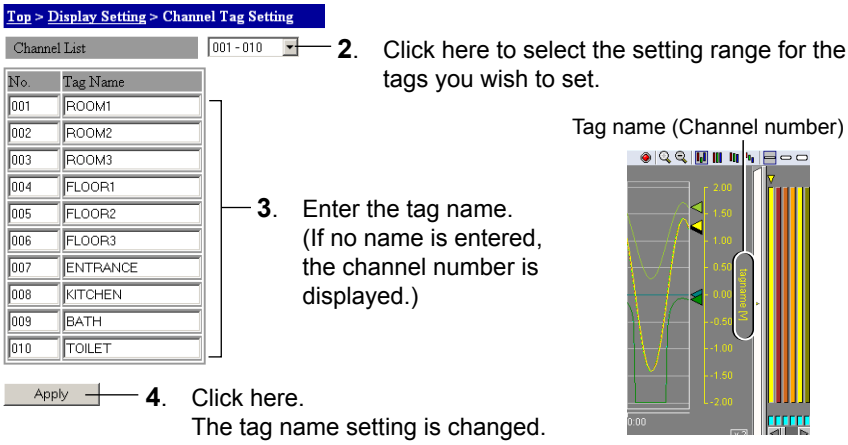
8. Click here.
The relay settings are changed.

Changing Monitor Screen Display Conditions

Stop measurement, then change the display method.
After changing the display method, start measurement and display the monitor screen.
The screen is updated according to the new settings. For details on display settings, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E), section 3.15.

Tag Settings

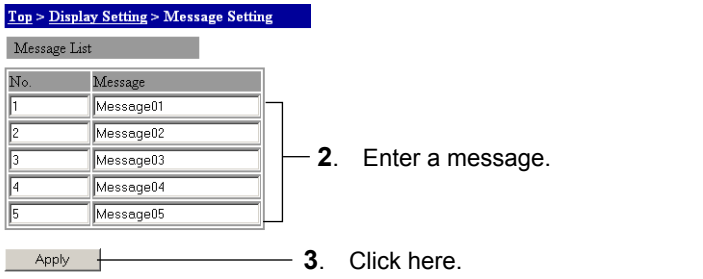
1. From the browser top screen, choose Display Setting > Channel Tag Setting.
The tag setting screen in displayed.



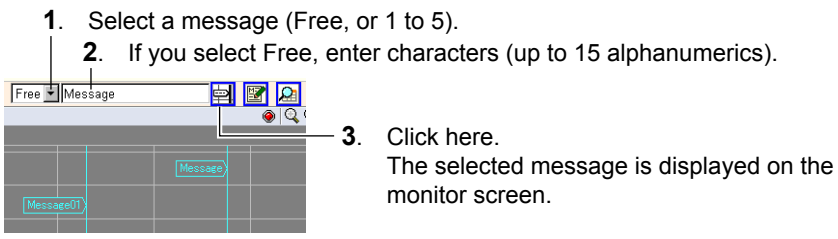
5. After choosing Display Setting in step 4, click Other Settings.

Setting Messages

1. From the browser top screen, choose Display Setting > Message Setting.
The message setting screen in displayed.

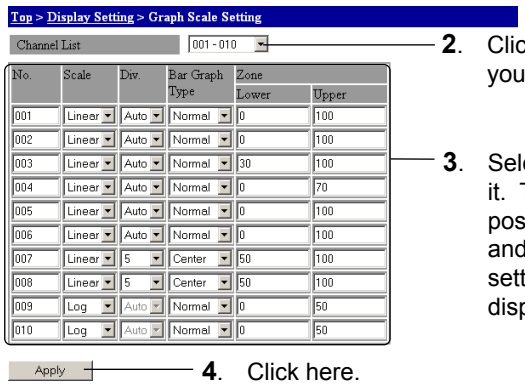


Operation in the browser's monitor screen


1. Select a message (Free, or 1 to 5).
2. If you select Free, enter characters (up to 15 alphanumerics).
Free
Message
3. Click here.
The selected message is displayed on the monitor screen.
Message
Message01

Display Scale Settings

1. From the browser top screen, choose Display Settings > Graph Scale Setting.
The scale setting screen in displayed.


Top > Display Setting > Graph Scale Setting
Channel List
001 - 010
No. Scale Div. Bar Graph Type Zone Lower Upper
001 Linear Auto Normal 0 100
002 Linear Auto Normal 0 100
003 Linear Auto Normal 30 100
004 Linear Auto Normal 0 70
005 Linear Auto Normal 0 100
006 Linear Auto Normal 0 100
007 Linear 5 Center 50 100
008 Linear 5 Center 50 100
009 Log Auto Normal 0 50
010 Log Auto Normal 0 50
Apply

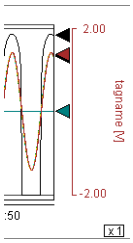
2. Click to select the channel range you wish to set.

3. Select each setting item, or specify it. The graph display reference position is applied to the numerical and bar graph displays. Other settings are applied to all types of display screens.

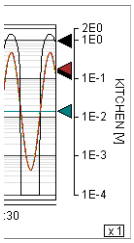
4. Click here.
The display settings are changed.

Scale Setting Example

Linear
(no. of scale divisions can be selected)

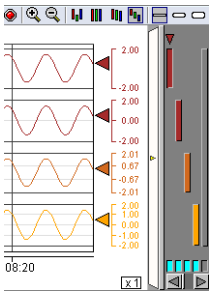


Log
(no. of scale divisions: fixed to Auto)

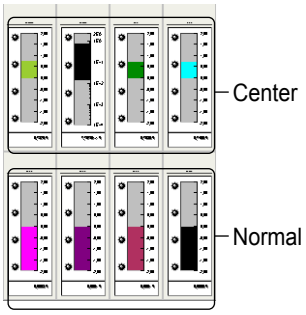


Scale division setting example

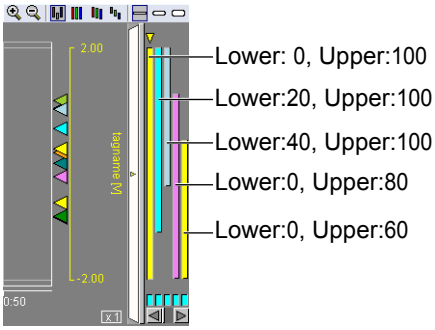
From the top, 1, 2, 3, or 4 divisions



Graph display position setting example

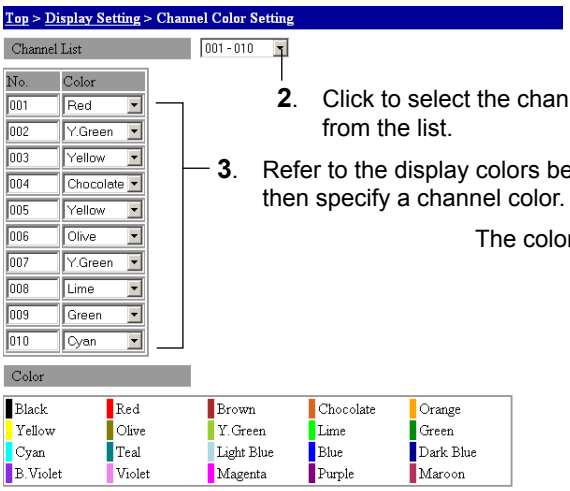


Zone Setting Example



Display Color Settings

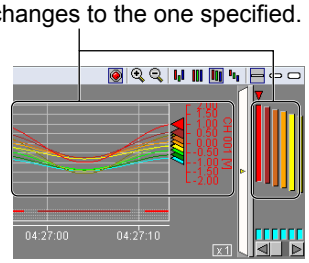
1. From the browser top screen, choose Display Setting > Channel Color Setting.
   The color setting screen in displayed.



2. Click to select the channel range you wish to set from the list.

3. Refer to the display colors below, then specify a channel color.

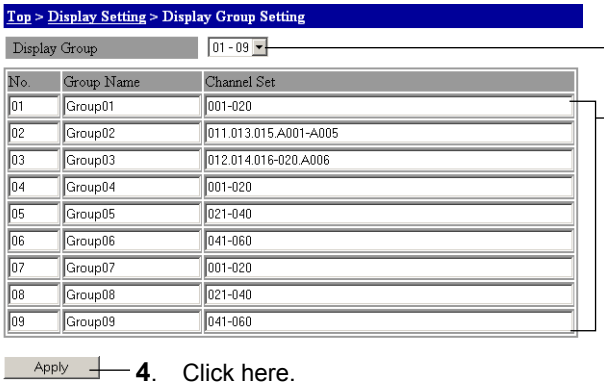
The color changes to the one specified.



4. Click here.
   The color settings are changed.

Display Group Settings

1. From the browser top screen, choose Display Setting > Display Group Setting.
   The display group setting screen in displayed.

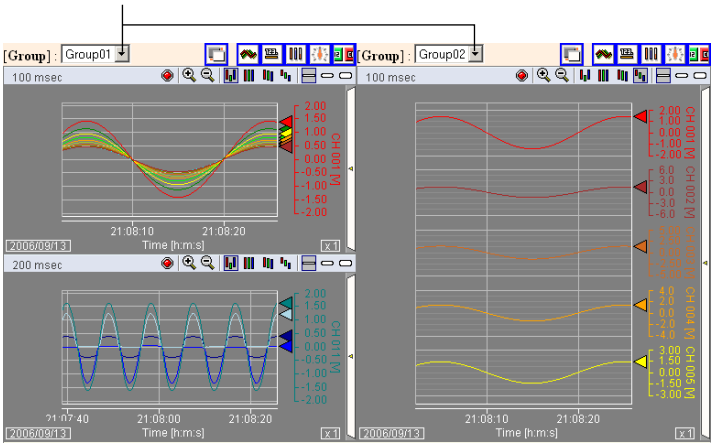


2. Click to select the display group range you wish to set from the list.

3. Enter group names and channels to include.
   You can specify a group name using up to fifteen alphanumeric characters.
   Up to twenty display channels can be registered to a single group. Individual channel numbers are delimited with periods (.), and ranges of channels can be specified with hyphens.
   The following is an example of a channel specification.
   001.003.005 (001, and 003, and 005)
   004-008 (004 through 008)
   001.A001-A005 (001, and A001 through A005)

4. Click here.
   The group settings are changed.

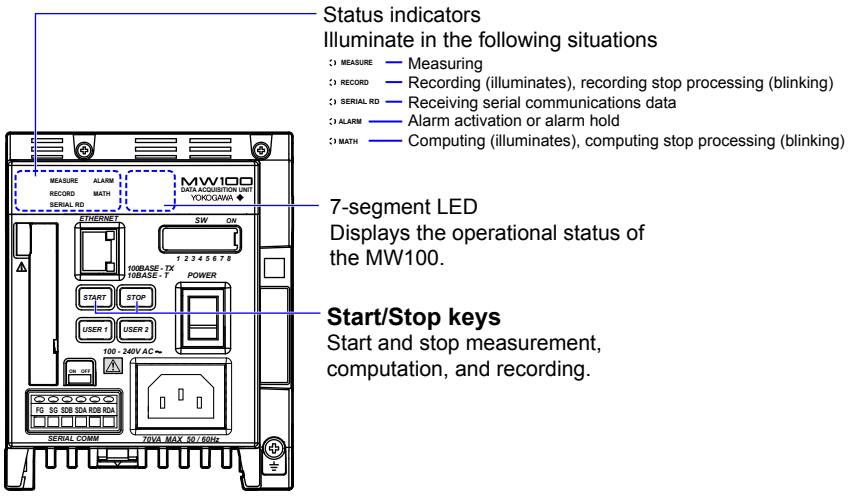
Click here. The set group names are displayed in the list. Select the group you wish to display.
The measured data of the channels specified for the group is displayed.



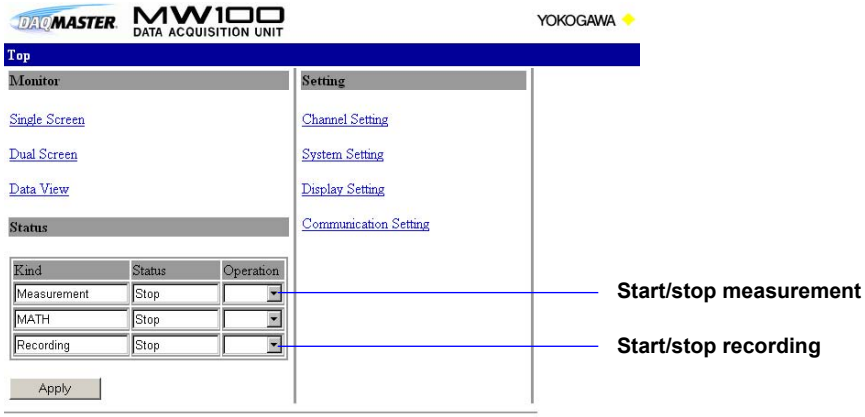
Starting and Stopping Measurement and Recording

To start and stop measurement and recording, you can use the keys on the MW100 Main Module, or use the browser.

• Using the Keys


Status indicators
Illuminate in the following situations
MEASURE — Measuring
RECORD — Recording (illuminates), recording stop processing (blinking)
SERIAL RD — Receiving serial communications data
ALARM — Alarm activation or alarm hold
MATH — Computing (illuminates), computing stop processing (blinking)
7-segment LED
Displays the operational status of the MW100.
Start/Stop keys
Start and stop measurement, computation, and recording.

• Using a Browser



Starting Measurement

1. Check whether the instrument is measuring or recording by looking at the MW100 main module's status lamp, or the browser's top screen.
2. Briefly press the MW100 main module's START key, or select Start in the Operation list under Measurement in the browser top screen's Status table.
   Measurement begins.

Starting Recording

1. Check whether the instrument is measuring by looking at the MW100 main module's status indicator, or in the browser's top screen.
2. Press the MW100 main module's START key for about two seconds, or select Start in the Operation list under Recording in the browser top screen's Status table.
   Measured data is saved to the CF card.
   File menus are automatically generated using the date and serial number.

   MDDIXXXX.MXD

M:	Month file created (local time), 1 to 9, X (October), Y (November), Z (December)
DD:	Date when file created (local time), 1 to 31
I:	Files in measurement groups 1 to 3 are 1 to 3 Computed data file is M Thinned values, T
XXXX:	Sequence number 0000 to 9999
MXD:	MW100 file extension (uppercase)

Stopping Recording

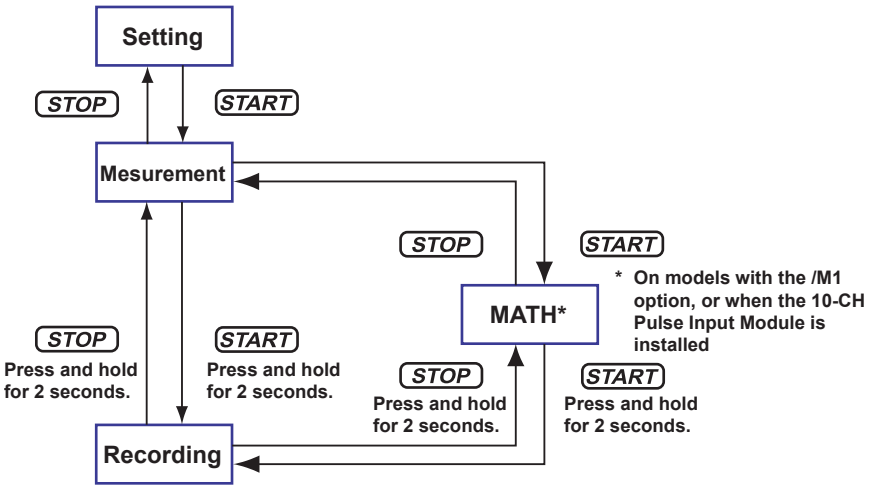
1. Check whether the instrument is measuring or recording by looking at the MW100 main module's status indicator, or the browser's top screen.
2. Press the MW100 main module's STOP key for about two seconds, or select Stop in the Operation list under Recording in the browser top screen's Status table.
   Recording stops.

Stopping Measurement

1. Check whether the instrument is measuring or stopping recording by looking at the MW100 main module's status indicator, or the browser's top screen.
2. Briefly press the MW100 main module's STOP key, or select Stop in the Operation list under Measurement in the browser top screen's Status table.
   Measurement stops.

Note

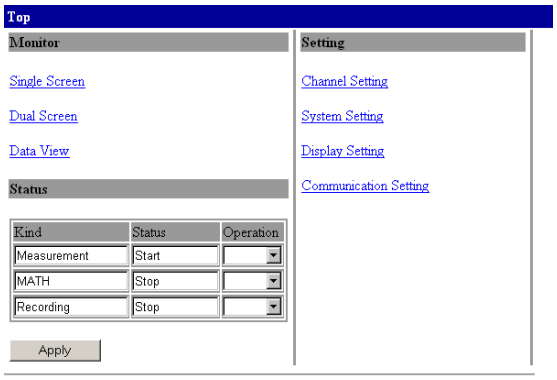
This document does not cover MATH settings, or how to start and stop computation. Please refer to the *MW100 Data Acquisition Unit user's manual* (IM MW100-01E).
The process is described in the status transition diagram.



Viewing Measured Data on the Monitor Screen and Starting/Stopping Recording

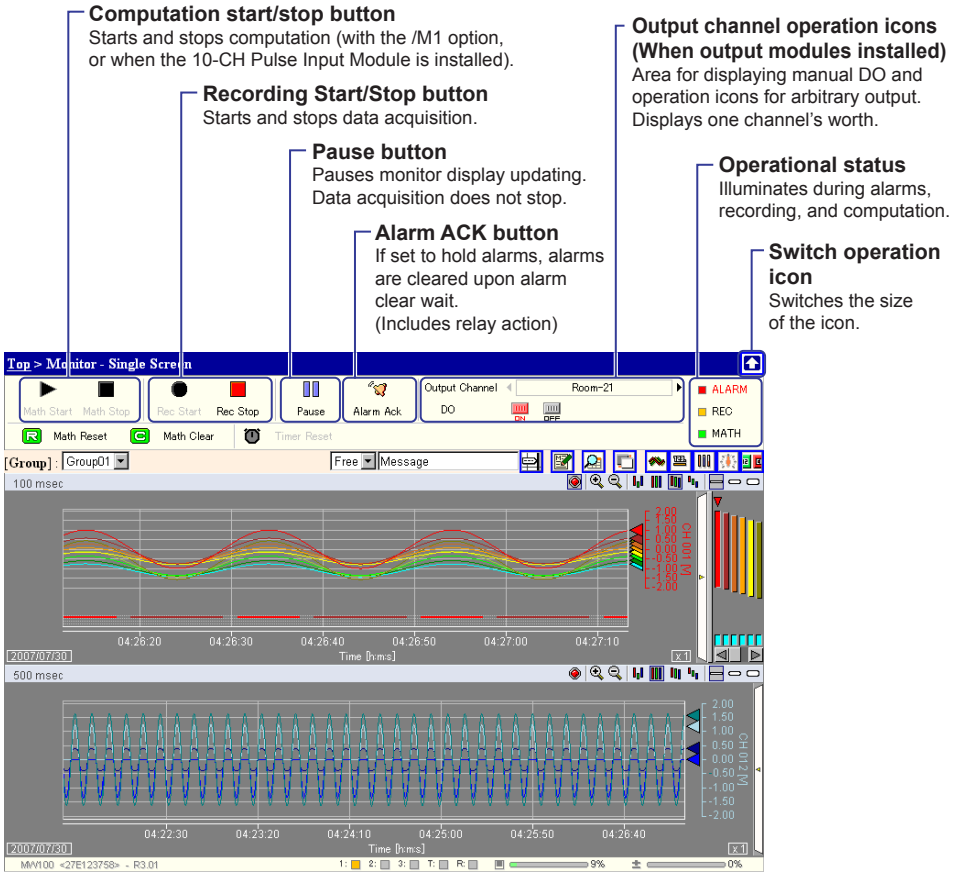
In the browser monitor screen, you can view data being measured in a trend, numerical, meter, or bar graph display. You can also start and stop recording, pause the monitor display, write messages, and perform other functions.

1. Check whether the instrument is measuring by looking at the MW100 main module's status indicator, or in the browser's top screen.
2. From the browser top screen, click Single Screen or Dual Screen.



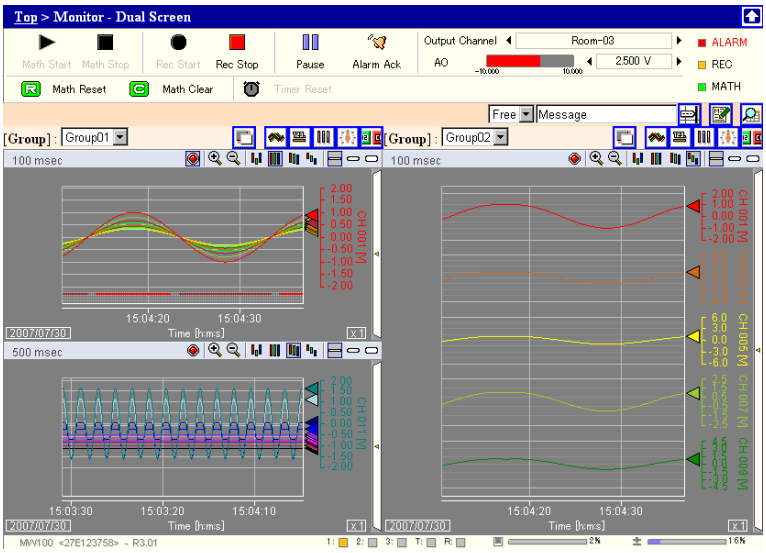
The Measured data screen appears.

Single Screen (Trend Display)

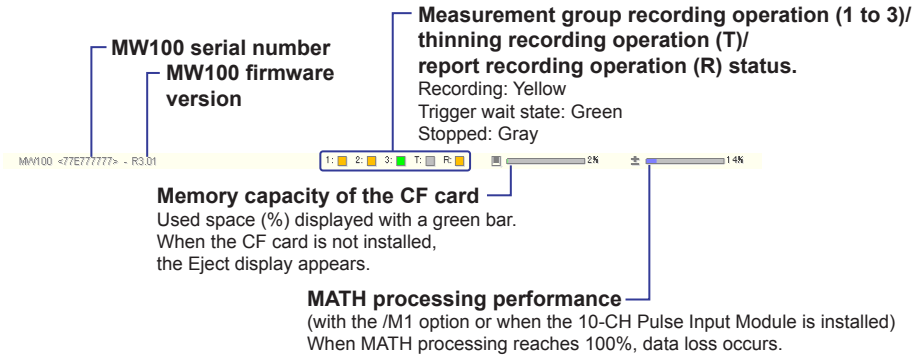


Dual Screen (Trend Display)

Use this when the monitor screen contains two screens. You can display two groups. From the top screen, click Dual Screens.



The contents of the status bar are as follows:

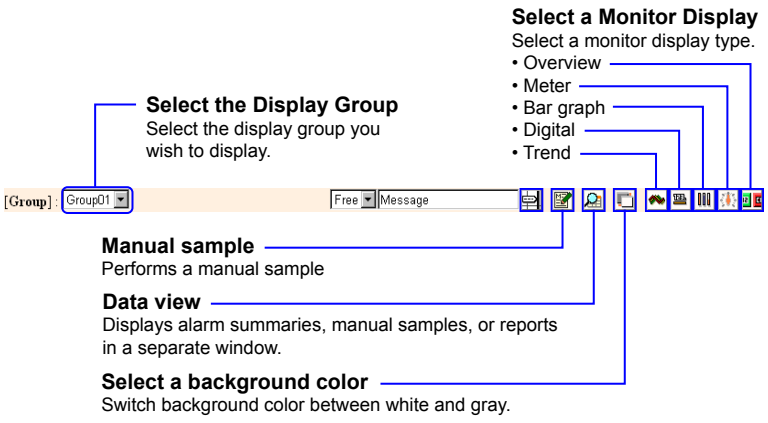

MW100 serial number
MW100 firmware version
Measurement group recording operation (1 to 3)/ thinning recording operation (T)/ report recording operation (R) status.
Recording: Yellow
Trigger wait state: Green
Stopped: Gray
Memory capacity of the CF card
Used space (%) displayed with a green bar.
When the CF card is not installed,
the Eject display appears.
MATH processing performance
(with the /M1 option or when the 10-CH Pulse Input Module is installed)
When MATH processing reaches 100%, data loss occurs.

Switching the Display Group and Monitor Display

3. To change the displayed group, select a group in the Select Display Group list in the figure below.

To switch the monitor display, click the Select Monitor Display button in the figure below.

The screen display switches.



• Digital Display

Displays measured values as numerical values. When alarms are set, the alarm status is displayed to the left of the numerical value.

Alarm status

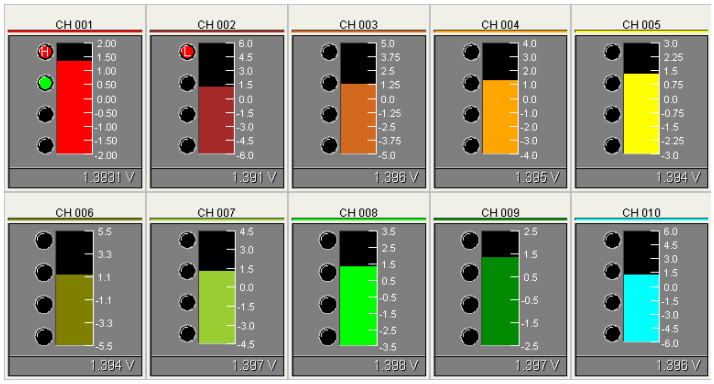
Black
Alarm not set up

Green
Illuminated: No alarm occurring
Blinking: Alarm hold clear wait after alarm factor cleared

Red
Illuminated: Alarm occurring (symbol in circle is alarm type: H/L/rH/rL/dH/dL/tH/tL)
Blinking: Alarm hold clear wait after alarm factor occurrence

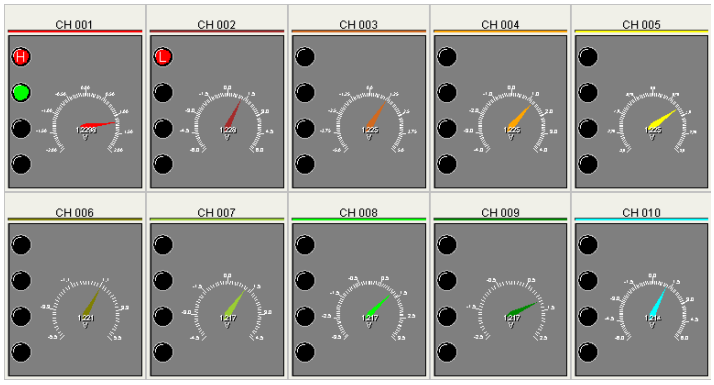
• Bar Graphs

Displays measured values in a bar graph. When alarms are set, the alarm status is displayed to the left of the bar graph. For information on alarm statuses, see Digital Display.



• Meters

Displays measured values in a meter. When alarms are set, the alarm status is displayed to the left of the meter. For information on alarm statuses, see Digital Display.

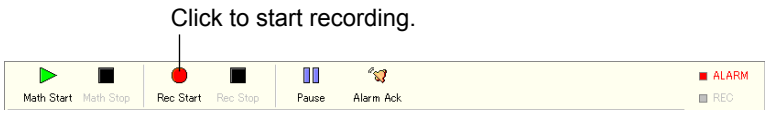


• **Overview Display**

Alarms (status and type) and measured values are displayed as numerical values in the monitor display screen. Skipped channels are not displayed. If the size of the window is reduced, only the alarms are displayed.

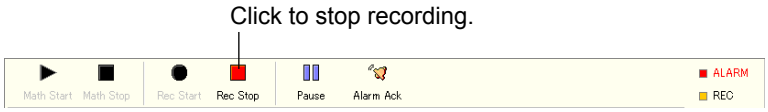
Starting Recording

4. Click the Record Start button in the screen display.
Saving of data to the CF card begins.



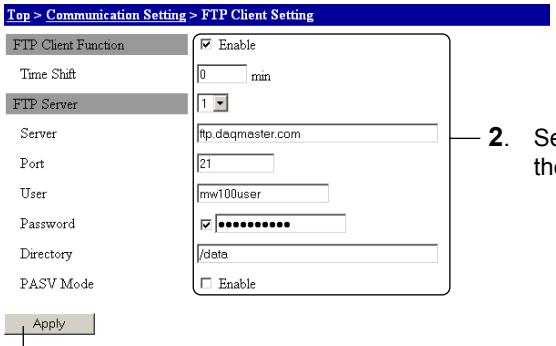
Stopping Recording

5. Click the Record Stop button in the screen display.



Transferring Measured Data to the FTP Server

1. From the browser top screen, choose Communication Setting > FTP Client Setting. The FTP client settings screen opens.



2. Set the items such as the FTP server name.

3. Click here. The settings are changed.

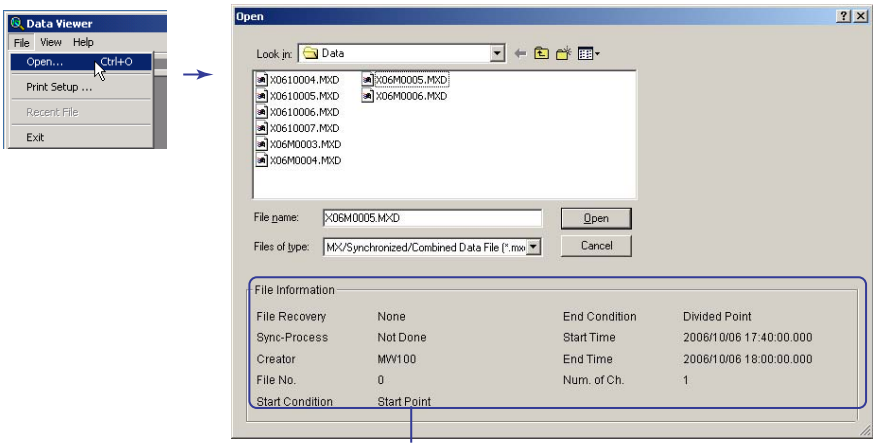
4. Start the measurement and then start the recording. (For the procedure to start the measurement and recording, see pages 20 to 22 in this manual.)
When a file is created, the file is transferred to the folder on the specified FTP server.

Viewing Measured Data on the Viewer Software

Displaying Data

You can view data files saved to the CF card and data files that have been transferred to the PC from the FTP server using the Viewer.

1. Choose Programs > MW100 Viewer > MW100 Viewer to start the Viewer.
2. Click the button on the toolbar or choose Open from the File menu.
   The Open dialog box opens.



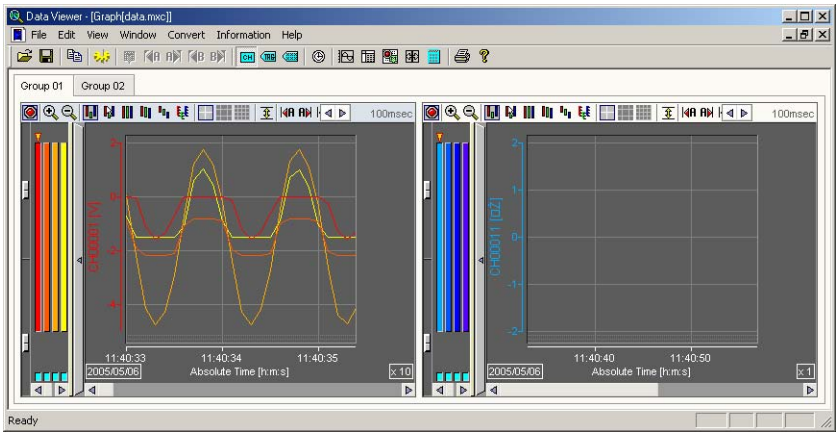
File information

3. Select the file you wish to load and click the Open button.
   The waveform display window opens.

   When Loading Divided Data Files on the MW100

   Before the waveform display window is displayed, if a file that can be joined exists, a dialog box opens with the message “Conbining with related files?” To join the data files, click Yes. To display only the specified file, click No.

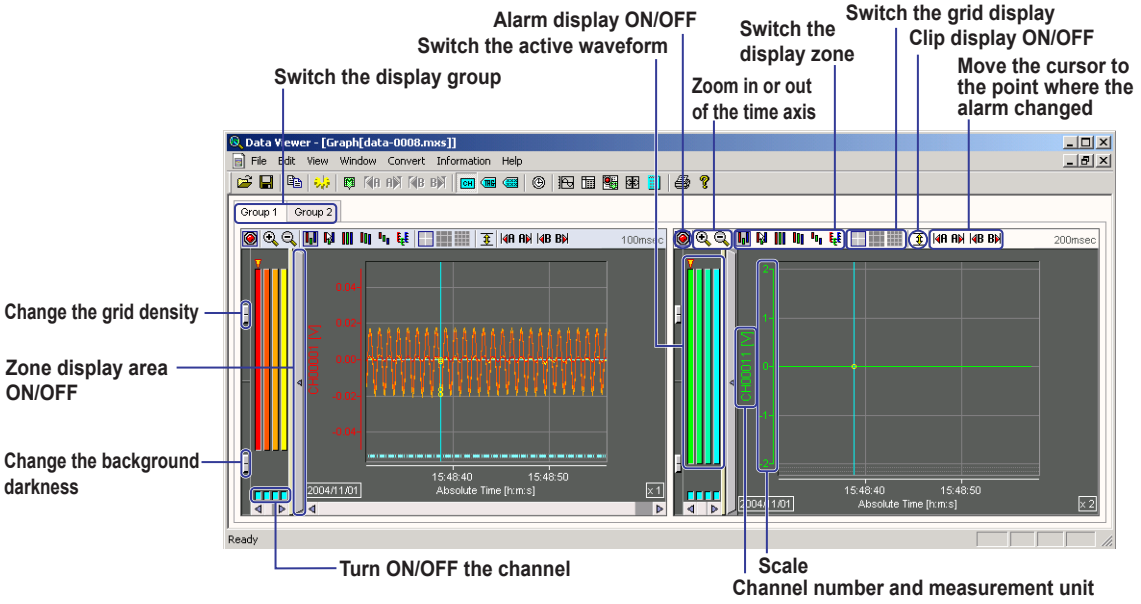
Opens the waveform display window



Files are divided into the graphs and math channel graphs at the recording interval specified on the browser even when in the same group.

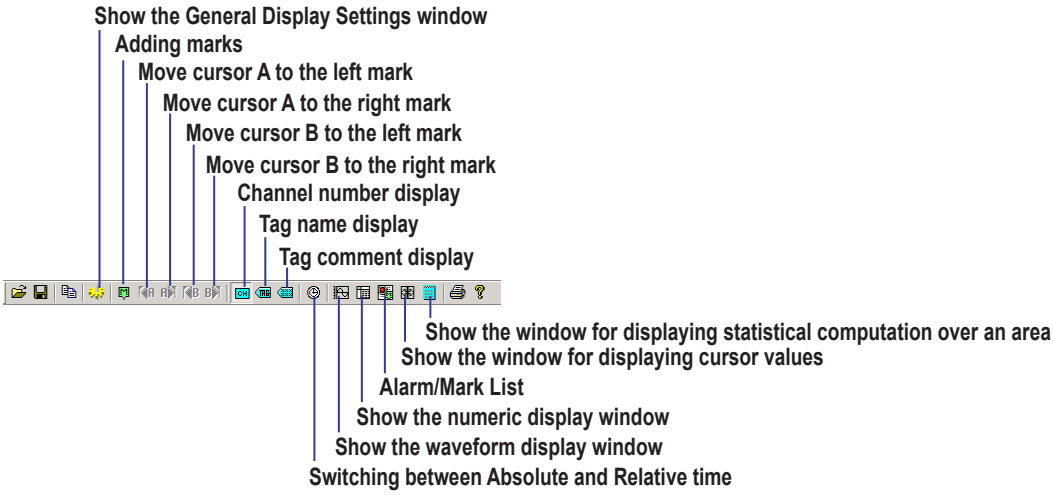
Changing the Display on the Waveform Display Window

Change the display settings according to the explanation in the figure below.


Alarm display ON/OFF
Switch the active waveform
Switch the display group
Switch the display zone
Zoom in or out of the time axis
Switch the grid display
Clip display ON/OFF
Move the cursor to the point where the alarm changed
Change the grid density
Zone display area ON/OFF
Change the background darkness
Turn ON/OFF the channel
Scale
Channel number and measurement unit

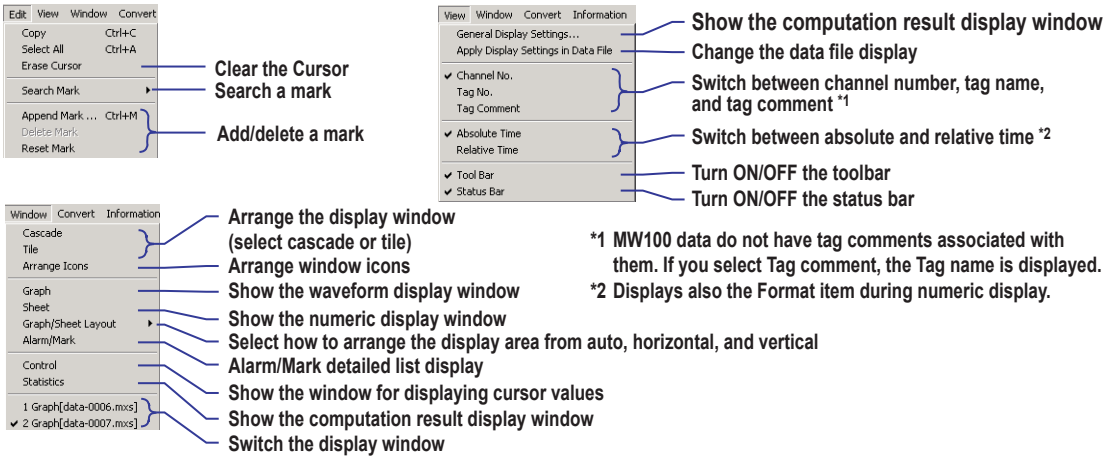
Changing the Display Using the Toolbar

Change the display settings according to the explanation in the figure below.


Show the General Display Settings window
Adding marks
Move cursor A to the left mark
Move cursor A to the right mark
Move cursor B to the left mark
Move cursor B to the right mark
Channel number display
Tag name display
Tag comment display
Show the window for displaying statistical computation over an area
Show the window for displaying cursor values
Alarm/Mark List
Show the numeric display window
Show the waveform display window
Switching between Absolute and Relative time

Changing the Display Using the Menu

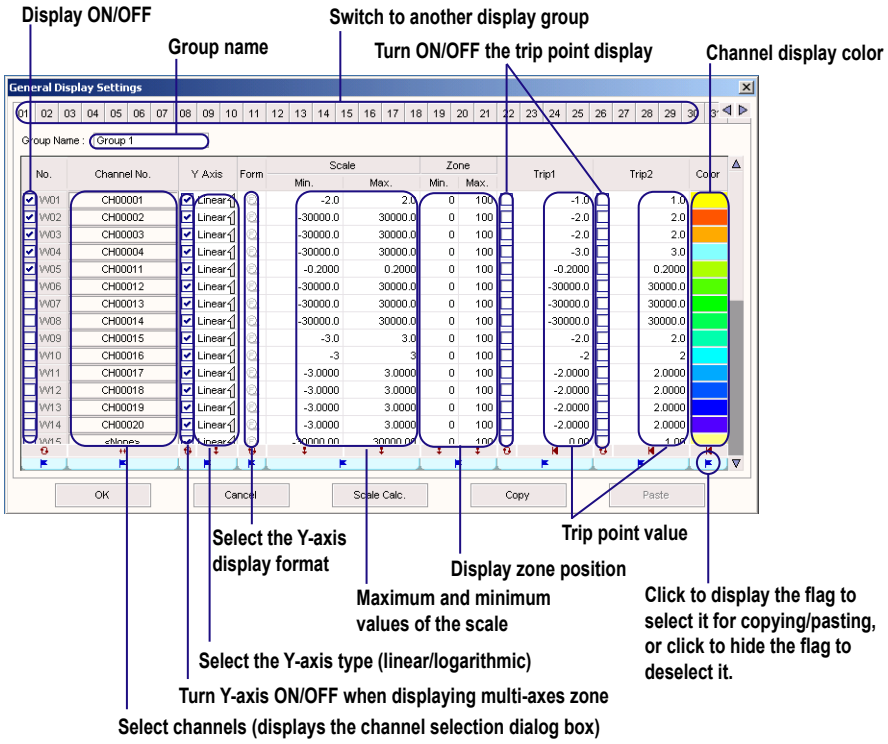
You can display the Edit, View, and Window menus.



*1 MW100 data do not have tag comments associated with them. If you select Tag comment, the Tag name is displayed.
*2 Displays also the Format item during numeric display.

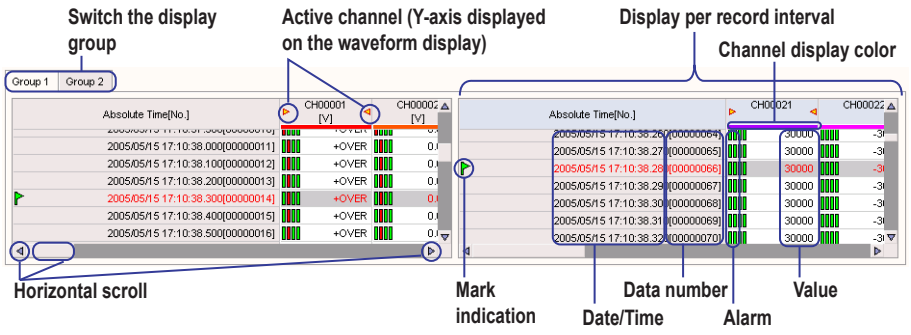
Changing the Display Using the Display Setup Window

See the explanation in the figure below. Change the display settings and click OK.
Set the display for each display group.

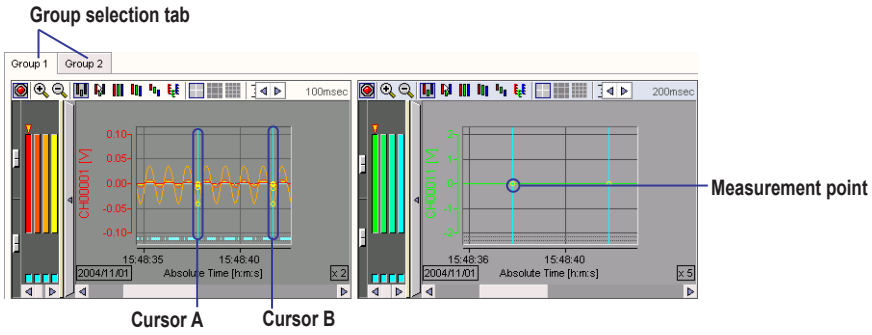


Numerical Display

While the waveform display window is displayed, click the button on the toolbar or select Window > Numerical Display to display a numerical value window as in the figure below. If there are groups with differing monitor intervals, the screen is split.

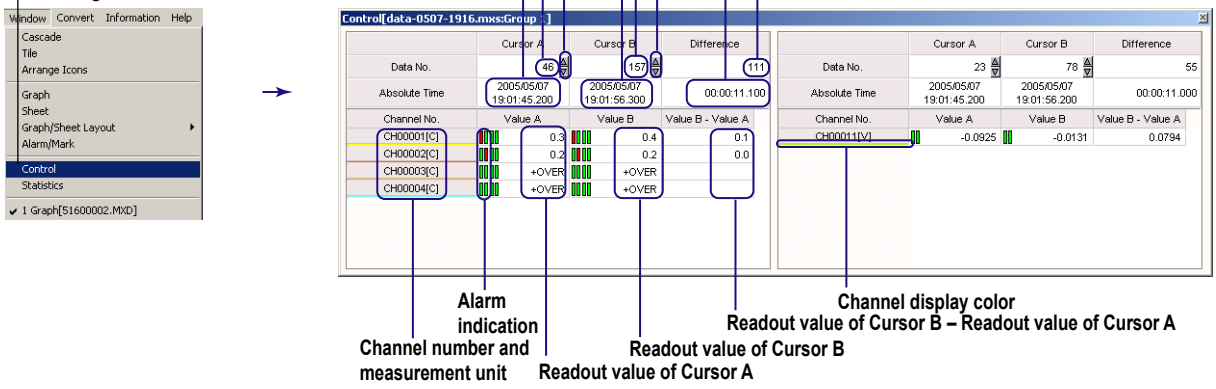


Reading Values Using the Cursor



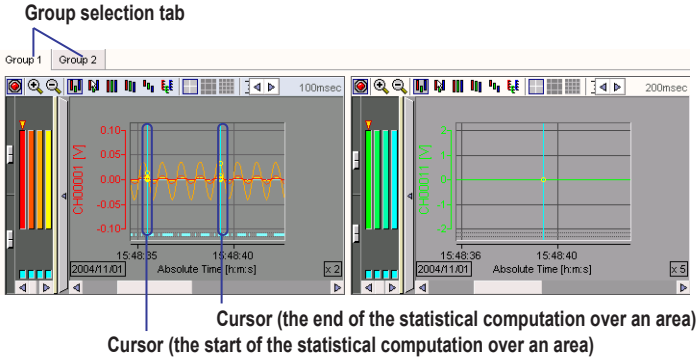
2. Click the mouse where you wish to read the data in the waveform display window.
   If you wish to read another point simultaneously, drag the cursor. Cursor A appears at the position where you first clicked; Cursor B appears at the position where you released the mouse button.

3. From the Window menu, choose Cursor value display. The Cursor window opens as shown in the figure on the right.

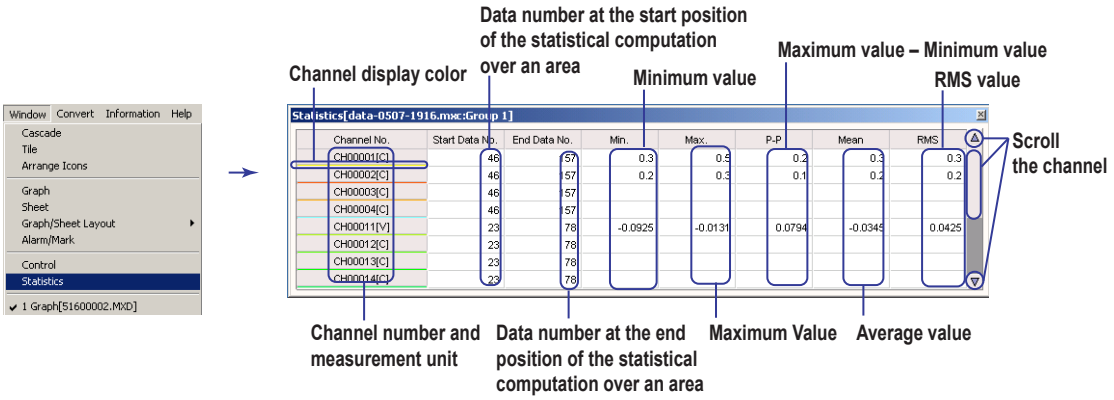


Statistical Computation over an Area of Measured/Computed Data

1. In the waveform display window, click the tab of the group on which you wish to perform statistical computation over an area.
2. Click the start position of the computation area in the waveform display area.
   A light-blue cursor appears in the waveform display area. If multiple waveform display areas are displayed, the cursor is displayed at the time position each waveform display area.
3. Drag the cursor to the end position of the computation area
   Another light-blue cursor appears at the position where the cursor was dragged.


Group selection tab
Group 1
Group 2
Cursor (the end of the statistical computation over an area)
Cursor (the start of the statistical computation over an area)

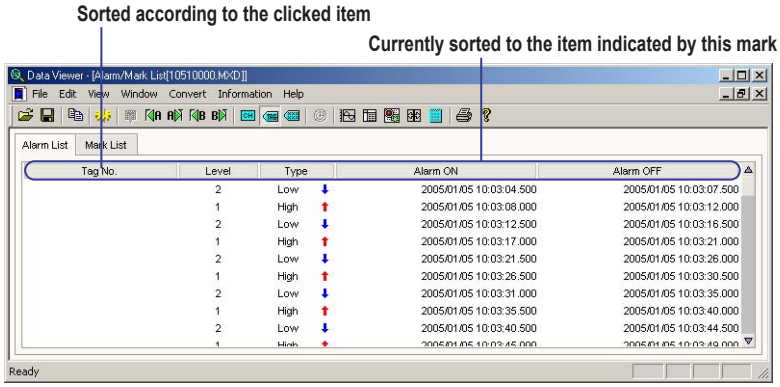
4. From the Window menu, choose Statistics.
The Statistics window opens.



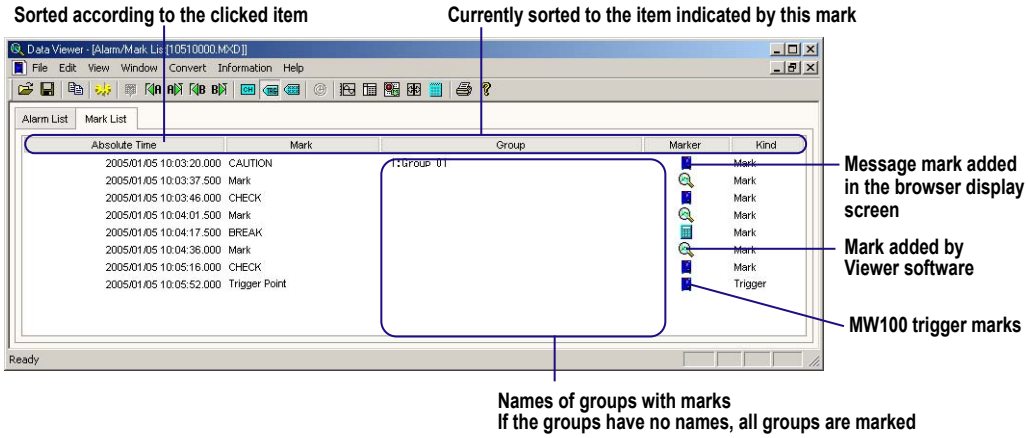
Alarm/Mark List

Click the button ( ) on the toolbar or choose Alarm/Marker List from the Window menu.

- Alarm List Display

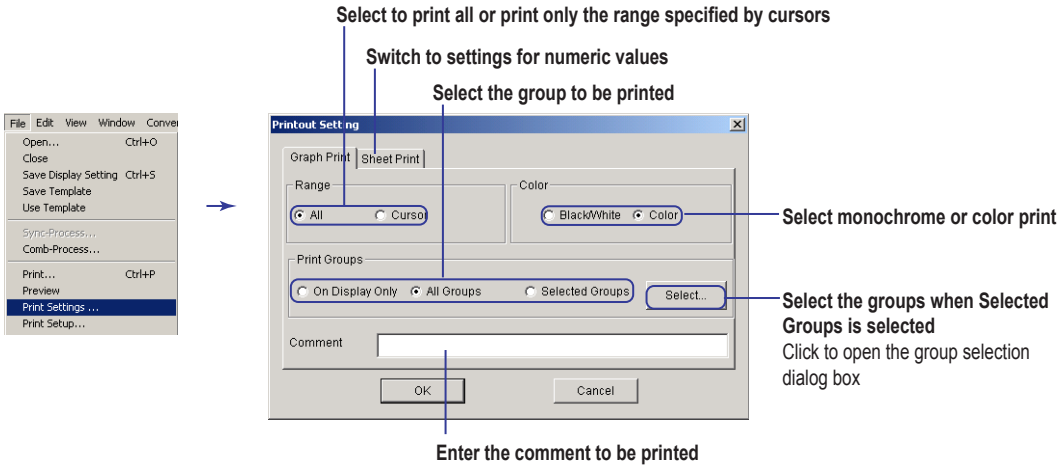


- Mark List Display



Setting the Contents to Be Printed

1. From the File menu, choose Print Settings.
   The Print Settings dialog box in the figure below opens.
2. Edit the print settings.



Converting Data Formats

The data formats below can be changed.

ASCII	Text data with each data point separated by a comma. The extension is .txt.
Excel	Data that can be opened using Microsoft's spreadsheet application Excel version 4.0 or later. The extension is .xls.
Lotus	Data that can be opened using IBM's Lotus 1-2-3 spreadsheet application version 2.0 or later. The extension is .wj2.

From the Convert menu, choose ASCII, Excel, or Lotus, then execute the conversion in the dialog box that is displayed as shown in the figure below. There is a limit to the number of data points that Excel and Lotus1-2-3 can handle. Before executing the conversion, set the channels/groups to be converted, the conversion range, and the step so that the number of data points is appropriate.